Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems	)	ET Docket No. 00-258
	)	IB Docket No. 99-81
The Establishment of Policies and Service Rules for the Mobile-Satellite Service in the 2 GHz Band	)	RM-9911
Amendment of the U.S. Table of Frequency Allocations to Designate the 2500-2520/2670-2690 MHz Frequency Bands for the Mobile-Satellite Service	)	RM-9498
Petition for Rule Making of the Wireless Information Networks Forum Concerning the Unlicensed Personal Communications Service	)	RM-10024
Petition for Rule Making of UTStarcom, Inc., Concerning the Unlicensed Personal Communications Service	)	

COMMENTS OF ARRAYCOMM, INC.

ArrayComm, Inc. (ArrayComm),[1] submits these comments in response to the Federal Communications Commission's (Commission or FCC) *Third Notice of Proposed Rulemaking (Third Notice)* in the above-captioned proceeding.[2]

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[1] ArrayComm, Inc. is the world leader in smart antenna technology. ArrayComm's patented IntelliCell® technology – based on fully adaptive smart antennas – creates dedicated personal cells of voice or data for wireless subscribers. IntelliCell technology is also the key ingredient behind ArrayComm's innovative i-BURST™ system – the only wireless Internet access system that offers the freedom of mobility with the high-speed of DSL at consumer pricing. The company has more than 200 patents issued or pending worldwide.

[2] *Third Report and Order, Third Notice of Proposed Rulemaking and Second Memorandum Opinion and Order,* ET Docket No. 00-258 and IB Docket No. 99-81, FCC No. 03-16, (rel. Feb. 10, 2003).

I. INTRODUCTION

In the *Third Report and Order* portion of its action in this matter, the FCC concluded that the Mobile Satellite Service (MSS) occupying the 1990-2025 MHz and 2165-2200 MHz bands can operate in less than the 70 megahertz of spectrum currently allocated to it in the 2 GHz band. Accordingly, the FCC reallocated 30 megahertz of that spectrum, specifically the 1990-2000 MHz, 2020-2025 MHz and 2165-2180 MHz bands, for Fixed and Mobile services. The Commission preserved the remaining 40 megahertz of spectrum for MSS. The Commission also redistributed some MSS spectrum in the 2 GHz spectrum recently recovered by the Commission in connection with its ongoing MSS milestone review. The FCC determined that this spectrum would be reassigned to the authorized MSS operators that remain after completion of the initial milestone review.

The foregoing actions taken by the Commission led to the *Third Notice*, where the FCC seeks comment on how best to use the reallocated spectrum, as well as other bands previously proposed for Advanced Wireless Services (AWS) use, the relocation of Multipoint Distribution Service (MDS), and additional flexibility for the spectrum currently allocated to the Unlicensed Personal Communications Service (UPCS). The FCC states that it seeks comment on using these bands for paired (Frequency Division Duplex or FDD) or unpaired (Time Division Duplex or TDD) AWS operations or as relocation spectrum for existing services.

In the following discussion, ArrayComm reiterates its case for unpaired spectrum to encourage the deployment of mobile broadband services. As discussed in more detail below, only TDD-based technologies can meet the cost and performance parameters necessary to offer mobile broadband services to consumers.

II. UNPAIRED SPECTRUM BANDS WILL ENCOURAGE THE DEPOLYMENT OF INNOVATIVE AND COST-EFFICIENT MOBILE BROADBAND SERVICES.

Any of the bands specified by the Commission in the Third Notice could be a home for TDD-based services. As a leading proponent of unpaired allocations before the FCC and throughout the world, ArrayComm believes that TDD-based technologies provided over unpaired spectrum will permit the provision of mobile broadband services that will far exceed the data rate of any third generation mobile service envisioned for the foreseeable future and at a cost competitive with today's fixed dialup data services. Under the right conditions an unpaired enclave within the UPCS, MDS or reallocated MSS spectrum under consideration would go a very long way toward jump-starting the mobile broadband market. In WT Docket No. 02-353, where the FCC is considering how it should assign 90 MHz of spectrum reallocated to commercial from government use,[3] ArrayComm challenged the Commission to expeditiously identify and allocate appropriate unpaired spectrum specifically for TDD-based services.[4]

ArrayComm expects the majority of commenting parties in this rulemaking, like those in WT Docket No. 02-353 to press the FCC to license the reallocated MSS and other spectrum specified on a paired basis that is suited to PCS-like services. This is understandable. FDD proponents also will most likely oppose the combination of TDD and FDD technologies within the AWS spectrum, asserting concerns over potential interference between the two transmission modes. This is also understandable; ArrayComm has similar concerns. These technical concerns are the stated basis upon which the FDD proponents insist that spectrum of any sizable

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[3] *See* Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands, WT Docket No. 02-353, *Notice of Proposed Rulemaking,* FCC 02-305 (rel. Nov. 22, 2002) (*NPRM*).

[4] Reply Comments of ArrayComm, Inc., in WT Docket No. 02-353, filed Mar. 14, 2003, at 2-4.

amount below 3 GHz must be divided into symmetrical band pairs.[5] We believe, however, that there are valid public interest benefits to be realized by an appropriate allocation of spectrum for TDD.

Both FDD and TDD interests should work together, under Commission auspices, to develop technical and operational regulations that will enable the public to reap the benefits of both technologies. A TDD system that would impair the operation of an adjacent channel FDD system is to be avoided; an FDD system would similarly adversely impact on TDD. No one gains thereby. It should not follow, however, that the arguments of the FDD adherents should prevail to the exclusion of TDD. Instead, a common goal of satisfying both should prevail.

We detect voices of reason on both sides that, heretofore, have been muted. The Commission needs to exert its leadership in strong terms to assure that the spectrum is allocated for maximum benefit, not merely to those that have the loudest voices.

III. CONCLUSION

Because TDD-based technologies have demonstrated the ability to meet the cost and performance parameters necessary to offer mobile broadband services to consumers,[6] these technologies offer an alternative to broadband services offered by telephone and cable television companies and must not be overlooked by the Commission. TDD and FDD proponents agree that the two systems cannot co-exist on a co-channel basis or as neighbors without agreed upon

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[5] ArrayComm has pointed out that FDD proponents hide behind "flexible allocations" and "technology neutrality" as well as "marketplace forces" to establish a rationale for their concept of the broadest potential use of new spectrum. In essence, of course, it is a charade; they know that their political or economic influence will lead to the result they desire: more paired spectrum for more of the same "mostly voice and a little data" service. *See* Reply Comments of ArrayComm, Inc., in WT Docket No. 02-353, filed Mar. 14, 2003, at 3. The Commission, however, has a broad mandate: it has a public interest responsibility not to ignore the benefits mobile broadband services offered over unpaired "TDD spectrum" would bring to consumers.

[6] *See* "Spectrum: Applications, Trends, and the Crunch for Spectrum," presented by Nitin Shah, Chief Strategy Officer, ArrayComm, Inc., to the September 18, 2002, meeting of the FCC Technological Advisory Council, http://www.fcc.gov/oet/tac/Nitin_Shah_9.18.02_Tac_Talk_Final.pdf (slide 16).

technical adjustments. ArrayComm urges the Commission to bring together the proponents of TDD and FDD technologies to develop technical and operational regulations that will enable both technologies to flourish and to provide their particular benefits to the public. This collaboration could be undertaken in a manner that is consistent with the "Good Neighbor" Incentive recommendation of the Spectrum Policy Task Force.[7] Such specific action is necessary to create an incentive to prospective mobile broadband providers and their investors and would also enable TDD and FDD systems to operate compatibly and offer the benefits of both to consumers. Absent such action by the FCC, spectrum use by FDD-based technologies will continue to proliferate, essentially shutting out TDD-based mobile technologies.

Respectfully submitted,

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[7] *Spectrum Policy Task Force Report*, ET Docket No. 02-135, (rel. Nov. 2002) (*SPTF Report*), at 22.